

SECTION 15000

MECHANICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This section applies to all Division 15 (mechanical) work.
- B. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements applies to all Division 15 work.
- C. Each specification section within their respective Division shall be coordinated with all other sections in that division for related work.
- D. The project documents contemplate the complete installation of the systems described herein, or shown on the drawings, so that at the conclusion of the construction, the systems will be turned over to the Owner complete and ready for safe, efficient operation.
- E. The Contractor shall be obliged to furnish and install all such items normally included on systems of this type, which while not mentioned directly herein are obviously essential to the installation and operation of the systems, and which are normally furnished on installations of this type.

1.2 COORDINATION OF WORK

- A. General: Refer to the Division 1 sections for general coordination requirements applicable to the entire work. The Contractor shall recognize that the Contract Documents are diagrammatic in showing certain physical relationships that must be established within the mechanical and electrical work, and in its interface with other work including utilities and that such establishment is the exclusive responsibility of the Contractor. This Contractor shall be responsible for work fitting in place without conflict with other trades, where proper planning could avoid interference. This Contractor shall examine the locations and verify all measurements, distances, elevations and existing conditions before starting work. Because the drawings are diagrammatic and on a small scale, all rises, drops, offsets, etc., have not been shown. The Contractor shall agree to provide and install the necessary piping, fittings, valves, ducts, duct fittings and offsets, and other specialties to suit such conditions without additional cost to the Owner. Mechanical drawings shall not be used for general construction dimensions or for type of material used for general construction. For exact building layout, dimensions and building materials used, Contractor shall refer to Architectural Drawings.

1.3 QUALITY ASSURANCE

- A. Contractor shall comply with all State, and local codes and ordinances.
- B. Contractor shall make application for, obtain and pay for all required permits and certificates of inspection of the work.
- C. All equipment, materials, and installation procedures shall comply with standards listed within each Division 15 section.
- D. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

- E. Install equipment and materials to provide required access for servicing and maintenance.

1.4 SUBMITTALS

- A. See 1B "Shop Drawings" for shop drawing submittal list.

- B. Maintenance and Operation Manuals:

1. Prepare and submit three (3) copies of maintenance and operation instructions for all Division 15 equipment furnished. Organize maintenance and operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed). Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, signed letters of certification of inspection and similar application information. Bind each manual of each set in a heavy-duty 2-inch, 3-ring vinyl-covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

- C. Record Drawings:

1. Provide one (1) set of mechanical drawings marked-up with actual installation locations for Division 15 work. Give special attention to the complete and accurate recording of underground conduit, piping and ductwork, other concealed and non-accessible work, branching arrangement and valve location for piping systems, locations of dampers and coils in duct systems, locations of control system sensors and other control devices, and work of change orders where not shown accurately by Contract Documents.

- D. Contract Document Discrepancies:

1. If Contract Document requirements appear to make it impossible to produce first class work, or should discrepancies appear among Contract Documents, request interpretation before proceeding with work. If Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out work in satisfactory manner. Should conflict occur in or between drawings and specifications, Contractor is deemed to have estimated on more expensive way of doing work unless he shall have asked for and obtained written decision before submission of proposal as to method or materials required.

- E. The Contractor shall be responsible for and bear any expense of alterations to the building or its appurtenances resulting from the substitution of equipment to that specified in the Contract Documents.

- F. Review of shop drawings does not release the Contractor from further satisfactory operating responsibilities. Material and equipment shall still be required to meet the requirements of the Construction Documents and shall be approved for final acceptance when construction is completed and all units and systems have been operated, tested, adjusted and balanced to the satisfaction of the Architect/Engineer. Should proposed approved alternate equipment involve rearrangement of designed equipment, a complete layout of the area involved shall be submitted by the Contractor, and shall be approved in writing before installation of any such items of equipment. Any additional expense involved shall be a Contractor-borne expense.

1.5 FEES, PERMITS, LICENSES, UTILITY CONNECTION CHARGES, AND UTILITY COST

- A. The Contractor shall obtain and pay for all fees, permits, licenses, utility connection charges (water, sanitary sewer, storm sewer and gas) and utility cost for services to the building required. Capital facilities utility service charges are to be paid directly by Owner, not part of the Construction Contract.
- B. The Contractor shall maintain all necessary signal lights and guards against danger and use all proper means for the safety of the public.
- C. The Contractor shall pay for opening and repairing all pavement cuts.
- D. The Contractor shall furnish to the Architect/Engineer copies of all fees, permits and licenses required for all mechanical work herein specified before any mechanical work is started.

1.6 ELECTRICAL COORDINATION

- A. General: Division 15 (Mechanical) Contractor shall coordinate with Division 16 (Electrical) Contractor for proper electrical power characteristics to all mechanical equipment which require electrical power connection. Unless specifically shown otherwise Division 16 Contractor shall provide all power connections required to provide power to the equipment and Division 15 Contractor shall provide all equipment and electrical wiring required for all start-stop control and safety interlock functions required for all equipment.
- B. Types of work, normally recognized as electrical but provided as mechanical, specified or partially specified in this section, include but are not necessarily limited to the following:
 - 1. Motors for mechanical equipment.
 - 2. Wiring from motors to disconnect switches or junction boxes for motors of mechanical equipment, but only where specifically indicated to be furnished integrally with equipment.
 - 3. Furnish and install all electrical control circuit conduits and wiring and control devices required to perform the equipment control functions as specified in Division 15, including float control switches, flow control switches, and similar mechanical/electrical devices provided for mechanical systems.
 - 4. All electrical equipment provided and the wiring and installation of electrical equipment shall be in accordance with the requirements of this Section and Division 16.
- C. Mechanical/Electrical Coordination Schedule: See schedule on drawings for further Mechanical/Electrical coordination requirements.

1.7 CLEANING AND PROTECTION

- A. General: During handling and installation of work at project site, each Contractor shall clean and protect work in progress and adjoining work on a basis of perpetual maintenance. Apply suitable protective covering on newly installed work where reasonably required to ensure freedom from damage or deterioration at time of substantial completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessary through remainder of construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

1.8 PROJECT CLOSEOUT

- A. Closeout Equipment/Systems Operations: Sequence operations properly so that work of project will not be damaged or endangered. Coordinate with seasonal requirements. Operate each item of equipment and each system in a test run of appropriate duration with the Owner's operating personnel present, to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters, excessively worn parts and similar expendable items of the work.
- B. Operating Instructions: Conduct a full-day walk-through instruction seminar for the Owner's personnel to be involved in the continued operation and maintenance of mechanical equipment and systems. Explain the identification system, operational diagrams, emergency and alarm provisions, sequencing requirements, seasonal provisions, security, safety, efficiency and similar features of the systems.

1.9 FINAL COMPLETION

- A. The Division 15 Contractors shall not call for a final completion check until the entire Mechanical and Electrical Equipment and Systems have been installed, adjusted, balanced and in full and complete satisfactory operation and the following certifications of inspection from equipment suppliers have been completed and submitted to the Architect/Engineer. Certifications of Inspections for Division 15 Equipment are required on the following items of equipment:
 - 1. Fans (Local Rep)
- B. The Certifications shall consist of letters signed by Factory-Trained and -Authorized Service Engineers stating the following:
 - 1. They have inspected all of their equipment on the project.
 - 2. They approve the condition of the equipment and its installation.
 - 3. They have fully checked its operation and certify that it is operating properly.
 - 4. They have noted any problems, conditions or objections that could lead to future operating problems.
- C. Documentation of the signed letters of Certification of Inspection shall be furnished in the Operations and Maintenance Manuals, included with the associated equipment.

1.10 FINAL PAYMENT

- A. Final Payment will not be made until the Contractor has satisfactorily completed all final inspection items.

1.11 GUARANTEE

- A. The one (1) year guarantee period shall not start until the project is fully completed and the Contractor has received the Final Payment and Certificate of Completion.
- B. All equipment and all work shall be fully guaranteed, parts, and labor, for one (1) full year from the date of the Certificate of Completion. Repairs made during this period must be fully guaranteed for an additional one (1) year period from the date of repairs.

- C. The Division 15 Contractor has the full responsibility to guarantee all equipment and work and shall assume full responsibility to repair any equipment at his cost that the manufacturer refuses to guarantee.
- D. The Owner has the right to order repairs to any equipment or work provided hereon and to charge the Contractor for same if repairs are not made by the Contractor within a reasonable period of time not to exceed 24 hours during an emergency or 72 hours on a non-critical item.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PAINTING AND FINISHING

- A. Where factory finishes are provided on equipment and no additional field painting is specified, all marred or damaged surfaces shall be touched up or refinished so as to leave a smooth, uniform finish at the time of final inspection.

END OF SECTION